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Electrical terminal connection, especially for connecting an outer conductor of a coaxial cable

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Patent Claims:

1. An electrical terminal connection, especially for connecting an outer conductor (19a) of a coaxial cable (19),
having a plug-in element (1), which has a plug-in section (111) and a sleeve attachment (111d) for the purpose of accommodating and connecting an electrical conductor, and
having an accommodating opening (3), which interacts with the plug-in element (1) and is formed in a housing wall (7),
the plug-in element (1) being pressed into the accommodating opening (3) for the purpose of making the electrical connection to the housing wall (7), **characterized**
in that the electrical terminal connection is designed to have two stages,
in that the plug-in element (1) has at least two plug-in sections (111a, 111b) which are formed such that they are offset in the plug-in and axial direction,
both the plug-in section (111a) which leads in the plug-in direction and the plug-in section (111b) which lags in the plug-in direction being provided with a knurl (27) on their outer circumference,
in that the accommodating opening (3) has a first and a second accommodating section (211a, 211b) which lie such that they are offset in the plug-in and axial direction of the plug-in element (1), and

in that the two plug-in sections (111a, 111b) and the two accommodating sections (211a, 211b), complementary thereto, are designed to have differing cross-sectional sizes, the radial or outer dimension of the plug-in sections (111a, 111b), which are provided with the knurl (27), being slightly greater than the radial or outer dimension of the accommodating sections (211a, 211b) respectively interacting therewith.

2. The terminal connection as claimed in claim 1, **characterized** in that the cross-sectional size of the leading plug-in section (111a) is smaller than the cross-sectional size of the lagging plug-in section (111b), at least in a partial circumferential region and transverse to the plug-in direction of the plug-in element (1).

3. The terminal connection as claimed in claim 1, **characterized** in that the cross-sectional size of the leading plug-in section (111a) is smaller than the cross-sectional size of the lagging plug-in section (111b) in the entire circumferential region and transverse to the plug-in direction of the plug-in element (1).

4. The terminal connection as claimed in claim 2, **characterized** in that the first accommodating section (211a) of the accommodating opening (3) is smaller than the offset, second accommodating section (211b), at least in a partial circumferential region corresponding to the partial circumferential region of the plug-in section (111a) interacting therewith.

5. The terminal connection as claimed in claim 3, **characterized** in that the first accommodating section (211a) of the accommodating opening (3) is smaller than the offset, second accommodating section (211b) in the entire circumferential region corresponding to the

circumferential region of the plug-in section (111a) interacting therewith.

6. The terminal connection as claimed in claim 1, **characterized** in that the inner surfaces of the accommodating sections (211a, 211b) of the accommodating opening (3) are designed to have no knurls.

7. The terminal connection as claimed in claim 1, **characterized** in that, of the outer circumferential surfaces of a plug-in section (111a, 111b) which each interact in pairs and the inner surface of the associated accommodating section (211a, 211b) of the accommodating opening (3), in each case only one section is formed with a knurl (27) and the other surface interacting therewith is formed without a knurl.

8. The terminal connection as claimed in one of claims 1 to 7, **characterized** in that the knurl (27) is in the form of an axial knurl or in the form of a transverse knurl.

9. The terminal connection as claimed in one of claims 1 to 8, **characterized** in that the knurl (27) is provided with leading flattened sections (29) in the plug-in direction.

10. The terminal connection as claimed in one of claims 1 to 9, **characterized** in that a circumferential annular groove (111c) arranged therebetween is provided between the two outer circumferential surfaces of the plug-in sections (111a, 111b).

11. The terminal connection as claimed in one of claims 1 to 10, **characterized** in that the surface (31), which leads in the plug-in direction, of the lagging plug-in section (111b) of the plug-in element (1) acts

as a stop shoulder which interacts with a corresponding stop surface (33) between the first and second accommodating section (211a, 211b) of the accommodating opening (3).

12. The terminal connection as claimed in one of claims 1 to 11, **characterized** in that the entire axial plug-in height of the plug-in attachment (111) corresponds to the axial accommodating height of the accommodating opening (3) such that, once the pressing-in procedure has been carried out, the plug-in insert (111) which has been pressed into the accommodating opening (3) ends flush with the housing wall (7) both on the inside and on the outside.

13. The terminal connection as claimed in one of claims 1 to 12, **characterized** in that the cross-sectional shape of the plug-in sections (111a, 111b) of the plug-in element (1) and the accommodating sections (211a, 211b), interacting therewith, of the accommodating opening (3) are circular or n-polygonal.

14. The terminal connection as claimed in one of claims 1 to 13, **characterized** in that the plug-in element (1) or housing wall (7) provided with the knurl (27) is made of a harder material than the housing wall (7) or plug-in element (1) interacting therewith.

15. The terminal connection as claimed in one of claims 1 to 14, **characterized** in that the sleeve attachment (111d) of the plug-in element (1) is arranged axially, counter to the plug-in direction, on the lagging plug-in section (111b) for the purpose of connecting the coaxial cable (19).

16. The terminal connection as claimed in one of claims 1 to 14, **characterized** in that the sleeve attachment (111d) of the plug-in element (1) is arranged axially, in the plug-in direction, on the

leading plug-in section (111a) for the purpose of connecting the coaxial cable (19).

17. The terminal connection as claimed in one of claims 1 to 16, **characterized** in that a plurality of internal holes (17) are formed on the plug-in element (1) for the purpose of accommodating coaxial cable (19).